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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,475	05/10/2005	Raoul Florent	FR020121US	5009

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS
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EXAMINER	
GUPTA, VANI	

ART UNIT	PAPER NUMBER
3768	

MAIL DATE	DELIVERY MODE
05/28/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/534,475	FLORENT ET AL.	
	Examiner	Art Unit	
	VANI GUPTA	3768	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 March 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,6-10 and 14-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-10 and 14-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1 – 4, 7, 8, 15, and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Zarkh et al. (US 2008/0247621 A1).

Regarding Claim 1, *Zarkh et al.* (hereinafter *Zarkh*) discloses a medical viewing system (**fig. 1, 100**) comprising a processing means for processing live sequence of images in real time.

Zarkh's processing means ***(figs. 1, 4, and 6)*** is capable of automatically detecting the guide-wire tip, yielding a skeleton of the guide-wire tip (pg. *[0028 – 0029])* and field of motion vectors based on said skeleton (pgs. [0033], [0042 – 0043]).

For purposes of examination, Examiner has interpreted skeleton to include any and all references to the structure or shape of a guide-wire, or guide-wire tip; and any and all references to the guide-wire and guide-wire tip itself. Furthermore, Examiner has interpreted "extending the skeleton" to mean directing the guide-wire or guide-wire tip through a region of interest. Zarkh discusses tracking and registering a device, including a guide-wire tip *(Abstract)*, which inherently includes "extending" the guide-wire/guide-wire tip.

Zarkh's processing means ***(figs. 1, 4, and 6)*** is capable of automatically registering the guide-wire tip with respect to a reference based on the field of motion vectors (pg. [0042 – 0043]) and for enhancing the images of the guide-wire and the vessel walls while blurring the background in the registered images comprising ridge enhancement means and temporal integration means for enhancing line-like structures and blurring the background *(pgs [0032] and [0037])*.

That is, if Zarkh provides means for enhancing the background images (pg. [0037]), then Zarkh provides means that are inherently capable of un-enhancing, or "blurring' the background in the registered images.

Furthermore, Zarkh provides means for obtaining images with assistance of gating capabilities, which inherently includes "temporal" integration (fig. 4, step 272; and pg. [0032]).

The system also comprises a display means for displaying a live sequence of processed images (***display device*, 120**).

Regarding Claim 2, Zarkh's system comprises first means for automatically detecting guide-wire tip are comprising means for spatially extending for spatially extending the skeleton (see Claim 1); matching the current skeleton to a skeleton of reference, means for estimating the matching motion and means for extrapolating this matching motion to a full region of interest (ROI) *(paragraphs [0032 – 0037])*.

Regarding Claim 3, Zarkh discloses processing means **(fig. 1, 110)** further comprising selecting means for selecting a Region Of Interest in the sequence of images comprising the guide-wire tip, and processing the data in said ROI *(paragraph [0028], second half: "processor is preferably a computing platform…")*.

Regarding Claim 4, control means for a user to activate, to control the duration or to stop the processing means applied to the sequence of images in connection to a selected instant of the sequence, comprising starting means and stopping means for the user to activate or stop, at said selected instant, the processing means applied to the sequence of images for improving the visibility of the selected ROI *(paragraph [0032 – 0033])*.

Regarding claims 7 and 8, Zarkh discloses registering means for further registering a live sequence of processed images with respect to a sequence of corresponding images called oer-interventional, in order to form a new live sequence (R'(t)) on which the features of the peri-interventional images are superimposed (pgs. [0029], [0032], [0037 – 0041]; ***fig. 4***).

Regarding claims 15 and 16, please refer to rejection of claims 1 – 4 and 7 – 8 and paragraph [0028].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claim 6 is rejected under 35 USC 103(a) as being obvious over Zarkh et al. (US 2008/0247621 A1), as applied to Claim 1 above, in further view of in view of Mo (US 6,413,217).

Regarding Claim 6, Zarkh et al. (hereinafter Zarkh) discloses a medical viewing system for displaying a sequence of medical images that represents moving and/orpositioning a guide-wire in a blood vessel.

However, Zarkh differs from Claim 6 in that Zarkh does not disclose specifically that second means comprises zooming means for zooming on a region of interest (ROI).

Nonetheless, Mo teaches a live pop zoom mode to zoom in ROI of medical system (col. 2, line 52 – col. 3, line 11).

Accordingly, it would be prima facie obvious to modify the medical viewing system of Zarkh with zooming abilities of Mo so that one could achieve improved image resolution and increased image frame rate.

2. Claims 9 and 10 are rejected under 35 USC 103(a) as being obvious over Zarkh et al. (US 2008/0247621 A1), as applied to Claim 1 above, in further view of in view of Webler (US US 2007/0055142 A1).

Regarding claims 9 and 10, Zarkh et al. (hereinafter Zarkh) discloses a medical viewing system for displaying a sequence of medical images that represents moving and/or positioning a guide-wire in a blood vessel. Zarkh also discusses registering live sequences of processed images with respect to a sequence of corresponding images called peri-interventional images, as discussed in Claim 8. Zarkh also discusses registering images and further registering images with the first registered images, as discussed in rejection of Claim 7 and 8.

However, Zarkh differs from claims 9 and 10 in that Zarkh does not disclose specifically that peri-interventional images are registered in a referential formed by two patient's characteristics (such as breathing characteristic and heart pulse characteristic).

Nonetheless, Webler teaches displaying images of a ROI with a cardiac parameter (electrocardiogram, heart sound, blood pressure, pulse wave, etc) and other physiological parameter (such as respiration rate, or respiration cycle, etc) (pg. [0023] and [0107 – 0108]).

Accordingly, it would be prima facie obvious to modify Zarkh with the teachings of Webler to include association of physiological parameters with images so that one could obtain more accurate and precise tracking of position and orientation of a guide wire in a blood vessel.

Response to Arguments

Applicant's arguments filed March 9. 2009 have been fully considered but they are not persuasive.

Examiner respectfully disagrees with Applicant's arguments on page 7 of Remarks, and directs Applicant to the rejection of Claim 1 for more information.

Applicant's amendments and remarks in light of claim objections and 35 U.S.C 112, second paragraph, rejection has been fully considered and are persuasive. Examiner withdraws all claim objections and 35 U.S.C. 112 second paragraph rejections.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to VANI GUPTA whose telephone number is (571)270-5042. The examiner can normally be reached on Monday - Friday (8:30 am - 5:30 pm; EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on 571-272-2083. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/V. G./
Examiner, Art Unit 3768

/Long V Le/
Supervisory Patent Examiner, Art Unit 3768